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| **Design:**  **B1** Develop detail design specifications. |  |  |  |  |  |
| **Development:**  **C1** Create and modify new or existing system interfaces.  **C2** Create and modify new or existing code. |  |  |  |  |  |
| **Project Management:**  **F1** Define scope of project.  **F4** Estimate time requirements.  **F7** Evaluate project requirements. |  |  |  |  |  |
| **Understands and Uses Complex and Dynamic Data Structures:**  Create and use dynamic data structures including but not limited to linked lists, stacks, queues, and trees.  **11101** Create and use pointers and dynamic memory allocation. |  |  |  |  |  |
| **Problem Solving:**  **11115** Define the general scope of work to meet project requirements or solve a problem.  **H1** Define the problem.  **H3** Identify/test possible solutions.  **H5** Implement solution. |  |  |  |  |  |
| **Analysis:**  **A1** Be able to gather data to identify customer requirements.  **A2** Interpret and evaluate requirements.  **A3** Define scope of the work to meet customer requirements.  **A4** Develop high level systems and functional specifications. |  |  |  |  |  |
| **Input:** The student demonstrates skill in receiving input from appropriate devices including but not limited to the keyboard and mouse. |  |  |  |  |  |
| **User Interface:** The student demonstrates skill in designing user interfaces that are easy and efficient to use. May include (but not limited to) menus, Heads Up Display (HUD), and other indicators. |  |  |  |  |  |
| **Surfaces/Sprites:** The student demonstrates skill in making surfaces/sprites for bitmaps and manipulates them according to the structure of the game/simulation. This includes background scrolling and manipulating onscreen and offscreen surfaces/sprites. |  |  |  |  |  |
| **Sprites/Animations:** The student demonstrates skill in manipulating surfaces/sprites to form animations that are applicable and appropriate to the game/simulation. |  |  |  |  |  |
| **Collision Detection:** The student demonstrates an understanding of and effectively uses collision detection as appropriate to the game/simulation. Including object to object and object to cursor. |  |  |  |  |  |
| **Physics:** The student demonstrates skill in manipulating the physics of the environment according to desired parameters. |  |  |  |  |  |
| **Automation:** The student demonstrates skill in automating objects according to the requirements of the game/simulation. This includes but is not limited to random events. |  |  |  |  |  |
| **Sound:** The student demonstrates skill in creating and manipulating sound in the game/simulation. This includes but is not limited to tone generation and playing wave and midi files. |  |  |  |  |  |
| **3D:** The student demonstrates skill in creating and manipulating objects in a 3D environment. |  |  |  |  |  |
| **Artificial Intelligence:** The student demonstrates skill in creating artificial intelligence relevant to the game/simulation. |  |  |  |  |  |
| **Debugging:** Student uses various devices to debug programs. This includes but is not limited to outputting variables and using the compiler’s debugger. |  |  |  |  |  |
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